

Occasional Papers On Mollusks

Published by

THE DEPARTMENT OF MOLLUSKS

Museum of Comparative Zoölogy, Harvard University
Cambridge, Massachusetts

VOLUME 4 15 NOVEMBER 1974 NUMBER 48*

MONOGRAPH OF THE GENUS *LUCIDELLA* IN CUBA (PROSOBRANCHIA: HELICINIDAE)

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ABSTRACT. Four species of the genus *Lucidella* occur in Cuba; three in the subgenus *Poeniella*, and one in *Poenia*. The Cuban species have zoogeographic affinities with Jamaican and Hispaniolan relatives. The systematics and biology of the genus and the Cuban species are discussed.

INTRODUCTION

This is the sixth recent monograph on the Helicinidae of Cuba. The genera covered in previous revisions were: *Viana*, *Priotrochatella*, *Emoda*, *Glyptemoda*, *Calidviana*, *Ustronia*, *Troschelviana*, *Semitrochatella*, (Clench & Jacobson, 1968; 1970; 1971 a & b), *Ceratodiscus*, and *Alcadia* (Boss & Jacobson, 1973a, and 1973b).

In contrast to the genera revised heretofore, which are either endemic in Cuba, or in which the Cuban fauna is well represented, there are only 4 Cuban species of *Lucidella* of some 40 nominal forms reported from the Neotropics, this fact affording little credence to the suggestion of Clench (1937: 69) that the genus *Lucidella* originated in Cuba.

Boss and Jacobson (1973 b) discussed the zoogeography and distribution of *Alcadia* in Cuba and concluded that representatives of the genus probably reached Cuba directly

*Volume 4 starts with Number 48.

from Jamaica. Occasionally species were derived via Hispaniola. *Lucidella*, which is closely related to *Alcadia*, shows a similar zoogeographic pattern: the Cuban representatives bear a marked resemblance to both Jamaican and Hispaniolan species. *Lucidella rugosa* from Cuba is hardly distinguishable from the Hispaniolan *L. cibaoensis*, and the Cuban *L. tantilla* and *L. granulum* belong to the subgenus *Poeniella* which probably originated in Hispaniola (Baker, 1923). Finally, *L. granum*, a member of *Poenia*, has its closest affinities with Jamaican species.

ACKNOWLEDGMENTS

We here express our gratitude to Dr. R. Robertson of the Academy of Natural Sciences of Philadelphia and Dr. J. Rosewater of the National Museum of Natural History for use of their collections. Dr. W. K. Emerson of the American Museum of Natural History and Dr. R. D. Turner and Mr. R. I. Johnson of the Museum of Comparative Zoology read the manuscript and offered much useful advice. The manuscript was patiently typed and corrected by our secretary, Mrs. G. Dent.

Family HELICINIDAE Latreille, 1825

Subfamily STOASTOMATINAE C. B. Adams, 1849

Genus *Lucidella* Swainson, 1840

Lucidella Swainson, 1840. Treatise on Malacology, p. 330 (type-species, *Helix aureola* Férussac 1822 [La Martinique] by monotypy).

Prosopsis Weinland, 1862. Malak. Blätt 9: 198 (type-species, *Prosopsis sulcata* Weinland 1862 [Haiti] by monotypy), *non* L. Jurine, 1801, *nec* Fabricius, 1804 (Hymenoptera).

Urichia Guppy, 1895. Proc. Victoria Inst. Trinidad, 2: 24 (type-species, *Helicina adamsiana* Pfeiffer, 1848, subsequent designation H. B. Baker, 1927).

Description. Shell between 2 to 9 mm in diameter, lens-shaped, conic, to depressed globose, usually with strongly developed axial or spiral sculpture; body whorl rounded to

depressed carinate, umbilical area depressed or excavated, with a thin, variously sized, basal callus. Aperture without teeth or more or less narrowed by toothlike projections above and below on the peristome often with corresponding external depressions or pits; a shallow notch at the upper insertion of the peristome. Operculum rounded triangular or semilunate, thin, translucent, light buff, somewhat darker at the edges; nucleus subcentral or near the columellar edge, not marginal; calcareous layer thin, glassy, closely pebbled, with a long, rounded, raised sigmoid lamella at the columellar margin; chitinous layer very thin, extending well beyond the margins of the calcareous layer.

Historical remarks. Swainson (1840) introduced *Lucidella* for *Helicina aureola* (Férussac), a species with a discoidal shaped shell and a dentate aperture. He placed the genus in a heterogeneous assemblage, the subfamily Lucerninae or "land volutes" which included widely disparate generic taxa, *Caracolla* (Helicidae), *Anostoma* (Odontostomidae), *Lucerna* (Camaenidae) and *Polymita* (Helminthoglyptidae). The type-species *aureola* was originally described and figured by Férussac (1822; see Kennard, 1942) as *Helix* or *Helicodonta* but was placed in *Helicina* by Gray (1825), who noted its simple operculum and prosobranch affinities. Wood (1828) did likewise and Gray (1842) recognized the genus *Lucidella* in the Helicinidae as "peculiar among operculated shells for having 3 or 4 teeth on the thickened edge of their mouths." Subsequently, Gray (1857) placed *Lucidella aureola* in his family Oligogyrae [sic], presently acknowledged as synonymous with the Helicinidae (Keen, 1960).

Petit de la Saussaye (1851) figured freshly collected specimens. In regard to *Lucidella*, Pfeiffer (1847) suggested a relationship with the vianine *Trochatella* and separated it from *Helicina s. s.* by its lack of a basal callus. He noted that the closest relatives of *aureola* were *leana* Adams and *lineata* Adams from Jamaica (see Jacobson and Boss, 1973 b) and delineated three intermediate to typical *Lucidella*-like forms, *depressa* Gray, *rugosa* Pfeiffer and *lirata* Pfeiffer. In 1848 Pfeiffer cited 98 species in the Heli-

cinidae, allocated to 3 genera, *Helicina*, *Trochatella* and *Lucidella*, with only the single type-species included. In 1850 he figured *aureola* but doubted the scientific correctness of *Lucidella*. In the 1852 edition of the *Monographia*, Pfeiffer listed *aureola* with *Lucidella* and in the 1858 edition added *L. nana*, which he had described in 1857. Later he (1865; 1876) recognized 5 taxa in *Lucidella*. In a more critical and extensive review, Wagner (1910) redefined the genus very much as it is understood today and extended its geographical confines to include species in the Lesser and Greater Antilles as well as in neighboring Central and South America. He suggested that the tiny notch formed where the outer lip inserts on the body whorl serves as an air-hole when the operculum is in place. In his discussion, he omitted many forms and names since, as he admitted, he did not have sufficient material. Two earlier 19th century monographs treated the species of the family Helicinidae in which several *Lucidella* were listed (Sowerby, 1842; 1866; Reeve, 1873). Although the Cuban *Lucidella* have been cited or delineated by Arango (1879), Crosse (1890) and Aguayo and Jaume (1948), no comprehensive review of the Cuban taxa exists.

General characteristics. Members of the genus *Lucidella* are readily recognized. Many species, especially those of *Lucidella s. s.*, have a peristome which is thickened by one or two tooth-like protuberances, a feature uncommon in most Helicinidae with the exception of some *Alcadia*. The rather strong surface sculpture, whether spiral or axial, serves to mark this group off from other helicinids which tend to be smooth (Boss and Jacobson, 1973 b) with the exception of *Glyptemoda*, *Glyptalcadia* and *Stoastoma*. The operculum is somewhat similar to that of *Helicina s. s.* but has a subcentral rather than marginal nucleus. The calcareous layer of the operculum in *Lucidella* is thinner and more fragile, and the columellar lamella relatively higher than in *Helicina*. In some smaller forms, like *L. granulum*, *L. granum* and *L. tantilla*, the labial teeth are obsolete, but the operculum and spiral or axial shell sculpture place them in *Lucidella*.

As in many heliciniids, the male of *Lucidella* is frequently smaller than the female (Baker, 1934) and resorption of shelly internal partitions is characteristic (Bland, 1858). In addition, the quality of the microhabitat leads to variation in the size and occasionally, of sculptural details in adult specimens (Brown, 1913).

The Subgenera. Subgenera relegated to *Lucidella* were described as *Perenna* and *Urichia* (Guppy, 1867; 1895), *Poenia* (Adams and Adams, 1856) and *Poeniella* (Baker, 1923) and placed in the Helicininae by Wenz (1838) and the Ceratodiscinae by Keen (1960). Since the Ceratodiscinae is so unusual in shell and opercular characteristics as to be considered monotypic (Boss and Jacobson, 1973a), *Lucidella* is accordingly placed in the Stoastomatinae, a group including small shelled heliciniids with variable sculpture and a mushroom-shaped T-lateral tooth in the radula with a reduced accessory plate and many, mostly multicuspoid marginal teeth.

On the basis of published data and examination of the type-species, we recognize 3 subgenera in *Lucidella* as follows:

1. *Lucidella s.s.* Swainson, 1840, type-species, by monotypy, *Helix aureola* Férussac, 1822, which includes the larger, more solid forms with strong labial dentition, minute basal callus, dark color, and pronounced spiral sculpture, occasionally strengthened by nodules as in *L. granulosa* Adams (See Plate 84, figs. 1-3 in Jacobson and Boss, 1973 b).

2. *Poenia* H. and A. Adams, 1856, type-species, by subsequent designation (Pilsbry and Brown, 1912), *Helicina depressa* Gray, 1825, which comprises small to moderately large shells with spiral sculpture and weak or absent labial teeth. This is a widely spread group with a single representative in Cuba and possibly Hispaniola.

3. *Poeniella* H. B. Baker, 1923, type-species by original designation, *Helicina plicatula christophori* Pilsbry, 1897, which resembles *Poenia* but differs in having axial instead of spiral sculpture. It is widely distributed with 5 species

in Hispaniola, 3 in Cuba and others in Puerto Rico, Florida, the Bahamas and several islands of the Lesser Antilles.

Anatomical remarks. Baker (1926; 1928) provided some notes on the anatomy of *Lucidella aureola* and *L. lirata*, respectively. He found resemblances in the female sexual apparatus of both, including the V-organ with a prominent ovoid protuberance to the left of its apex, the small bilobed sperm sac imbedded in the provaginal sac with a short, stout stalk, and the provaginal sac flattened and deeply lobed on the left side. In these respects the female anatomy does not differ much from that of *Alcadia* and *Eutrochatella* as shown by Bourne (1911: pl. 35, figs. 25, 26). This emphasizes the conclusions of Bourne (1911: 777) and Baker (1926: 35) that the general uniformity of the genitalia of the Helicinidae makes them useless for diagnostic purposes.

Radula. The radula of *Lucidella* exhibits the essential features of a helicinid (Troschel, 1857): a single central rachidian tooth (R), flanked by A, B, and C centrals and a lateral complex (LC) consisting of a comb-lateral and an accessory plate and a marginal complex (MC) consisting of numerous teeth or uncini. These structures can be abbreviated in the formula: (MC) (LC) C B A R A B C (LC) (MC).

Baker (1922) described and figured parts of the radula of *Lucidella (Poenia) lirata* and *Lucidella (L.) aureola*. The radulas are generally similar, but differences do exist. Although in both cases the uncusped R-centrals are "hooded," the shape of this tooth differs, that of *lirata* being subcircular with a rounded base, while in *aureola* it is broadly anvil-shaped, with a straight base. The number of cusps on the A-, B-, and C-centrals are roughly equal, but in *lirata* the comb-lateral of the lateral complex has only 6 cusps, whereas in *aureola* there are 9 to 10. The differences in the marginals are even greater, there being in *aureola* 2 teeth with 2 cusps, 21 with 3 cusps, and 20 with 4 cusps; in *lirata* there are only 5 with 3 cusps, and 12 with 4. *L. lirata* has 135 teeth in each transverse row of the radula, including 62 marginals, whereas *aureola* has 283 teeth including 136 marginals. It appears that, in the course of

evolution, as *aureola* increased in the size and strength of its labial protuberances it also increased the number and complexity of its radular teeth.

The comb-lateral section of the lateral tooth complex has a terminal post and a large, roughly quadrate, winged, accessory plate which engages only slightly with the comb-lateral. The radula of *Lucidella* roughly resembles that of the subfamily Helicininae. However, because of resemblances with the radula of *Stoastoma*, *Fadyenia*, and *Ceratodiscus*, chiefly in the presence of pauci-cusped inner marginals, Keen (1960) united *Lucidella* with these genera in the subfamily Ceratodiscinae. Boss and Jacobson (1973a) expressed doubts regarding this arrangement chiefly on zoogeographical grounds, namely that *Ceratodiscus* is absent from Jamaica where the genus *Lucidella* radiated.

Baker (1922: 54), finding that the radula of *Stoastoma lindsleyanum* C. B. Adams, 1849, the type-species of the genus *Lindsleya* Chitty, 1857 (synonym of *Fadyenia* Chitty, 1857) was very close to that of *Lucidella lirata*, placed *Lindsleya* (= *Fadyenia*) tentatively as a subgenus of *Lucidella*. He regarded his *Lucidella venezuelensis*, from Venezuela as belonging here as well. However, both the shell and operculum of *Fadyenia* (and also of "*Lucidella*" *venezuelensis*) are so different from *Lucidella* that it is more advisable to regard *Fadyenia* as a full genus, separate from *Lucidella*, a procedure followed by Keen (1960) and Boss (1972).

Habitats. The species of *Lucidella* are mostly ground-dwellers, living under leaves or rocks in damp places. In Cuba Arango (1879) reported *rugosa* as living under stones and *granum* in bushes ("en los arbustos"). Ramsden (1914: 50) discovered "*tantilla*" (= *granulum*) "in dirt at the root of trees." Brown (1913) extensively observed the habitat preferences of two Jamaican species which were found mostly along the borders of woods or on stone walls. Baker (1934) noted that some of the Jamaican species are subarboreal ("good climbers") and ground dwellers.

Enemies. Many specimens from Cuba have a tiny, perfectly circular hole in the shell which was probably drilled

by an unknown predator. Clench and Jacobson (1971b: 409) noticed the same sign of predation in some small Cuban vianine helicininids. Additionally, Clapp (1921: 108) noticed that *Lucidella tantilla* on Chokoloskee Key, Florida, appeared to be a favorite food with some beast that bites them fairly in half.

Zoogeography. Wagner (1910: 337) and Clench and Jacobson (1971b) noted that the distribution of *Lucidella* coincided remarkably with that of *Alcaldia* and *Eutrochattella*. Since the latter probably originated in Central America, the point of origin of *Lucidella* may also be sought there, where the species *Lucidella lirata* (Pfeiffer, 1847) has a wide distribution from Venezuela to southern Mexico (Baker, 1928). The mode of dispersal may then have been as follows: the ancestral form, which was possibly related to *L. costata* Simpson, 1894, a Miocene fossil from the Bowden beds of Jamaica (Woodring, 1928), made its way to Jamaica where it underwent a radiation. Some 16 forms of *Lucidella s. l.* are known there today. All the Jamaican forms of *Lucidella* have predominately spiral sculpture, the sort found in *L. lirata* and in the insular form, *L. midyetti* Richards, 1938, from Roatan Island, Honduras. This sculpture is characteristic of the subgenus *Poenia* H. and A. Adams, 1856. In Jamaica, *Lucidella s.s.* developed larger, heavier, more colorful shells with a very much reduced basal callus and with strong lip teeth, greatly constricting the aperture. These features can be seen in *L. aureola* (Férussac), the type-species of the genus. *L. granulosa* (C. B. Adams) developed strong surface nodes, some arranged in vaguely axial rows. The variations in these species have been detailed by Brown (1913) who related them to environmental factors.

Following the routes discussed by Darlington (1938: 295), *Lucidella* appears in Hispaniola where, in addition to 7 species of the Jamaicas subgenus *Poenia*, a new subgenus, *Poeniella*, possibly derived from some form similar to *granulosa*, radiated into the 5 taxa presently found in Hispaniola. From Hispaniola *Lucidella*, in the form of the subgenus *Poeniella*, probably *L. cibaoensis*, made its way

to Cuba. The subgenus *Poenia* came to Cuba from Jamaica where today it is represented by the single species, *L. granum*.

From Jamaica and Hispaniola as centers, the various groups migrated to other areas: *Poenia*, starting from Jamaica where 10 forms are known, migrated to Hispaniola where 7 forms are now recognized and then to Barbados, Swan Island, St. Lucia and other of the Lesser Antilles, Trinidad, Martinique, Cuba and Puerto Rico, with a single species each. *Poeniella*, originating in Hispaniola, expanded to Cuba (3 species), Puerto Rico, the Bahamas, Florida Keys, Grand Cayman and St. Kitts where a single form developed in each locality. The possible routes of invasion in these cases is not known though it is assumed that passive transport, probably modulated by hurricanes, figured in the distribution to Cuba, Florida and the Bahamas. These migrations took place long enough ago for largely endemic forms to have developed in each area.

Plotting these data on Map 1, we note that *Poeniella* is located more to the north, from Florida to St. Kitts, whereas *Poenia* is found from Yucatan to Barbados and Trinidad. That *Poeniella* does not occur on Jamaica at all agrees with the generalizations of Darlington (1938), who concluded that the line of migration was from Jamaica to Hispaniola and Cuba, and not from Hispaniola to Jamaica. There are no species of *Lucidella s. s.* in Cuba and there are no species of either *Poenia* or *Poeniella* on the Isle of Pines. Details of distribution of the species found in Cuba appear in the discussion of each of the Cuban species and are illustrated in Map 2.

The catalogue of *Lucidella* which follows this study (Boss and Jacobson, 1974) includes all the names introduced for this genus and forms the basis for the remarks on the zoogeography of the genus. Lack of material made it impossible to judge the state of all the names independently, and the opinions of various authorities on the subject are included as notes.

Subgenus *Poenia* H. and A. Adams

Poenia H. and A. Adams, 1856. Genera of Recent Mollusca 2: 304 (type-species, *Helicina depressa* Gray, 1825 [Jamaica], subsequent designation, Pilsbry and Brown, 1912).

Perenna Guppy, 1867. Ann. & Mag. Nat. Hist. 19: 260 (type-species, by monotypy, *Helicina lamellosa* Guppy, 1867 [Trinidad] [= *H. lirata* Pfeiffer]).

Description. Shell small, 3 to 4 mm in diameter, depressed, light colored, weakly to strongly sculptured with spiral lines or ridges, occasionally crossed by much weaker axial striations, sculpture covering entire shell or obsolescent on base; occasionally with more or less densely spaced short, deciduous bristles; lip teeth weakly developed, aperture not strongly constricted.

Remarks. Members of this subgenus are recognized by their small size, light color, and predominantly spiral sculpture though species may also have weak axial striations. The single Cuban species, *L. (Poenia) granum* (Pfeiffer), confined to the easternmost part of the island, must have reached Cuba from Jamaica, possibly via Hispaniola (Map 2). Besides Jamaica, Cuba, Hispaniola, Puerto Rico and Yucatan, the subgenus occurs on the more southerly Lesser Antilles like St. Lucia and Martinique and also on Trinidad, thus in territory lying to the south of the range of *Poeniella*.

Keen (1960: 288) and others recognized *Perenna* Guppy, 1867 with type-species *lamellosa* Guppy (= *lirata* Pfeiffer) as a valid subgenus. It is difficult to justify the separation of this group from *Poenia* because the only difference cited by Keen is the presence of a keel in *Perenna*, an insufficient character for subgeneric distinction.

Baker (1922: 54) cited *H. unidentata* Pfeiffer, 1849 (= *H. lirata* Pfeiffer, 1847) as the type of *Poenia* following Fischer (1885). However, since Fischer did not actually select a type-species, the designation must date from Baker, 1922. This designation, however, was predated by that of Pilsbry and Brown, 1914, who selected *Helicina depressa* Gray, 1825 as the type-species of *Poenia*.



Map 1

The distribution of subgenera of the genus *Lucidella*. *Poeniella* has a more northern distribution from Florida to St. Kitts (No. 1) while *Poenia* is found in the south from Yucatan to Barbadoes and Trinidad (No. 3). Both overlap in No. 2. *Lucidella* s.s. is found principally in Jamaica.



Map 2

The distribution of the Cuban species of *Lucidella*. 1 = *rugosa*. 2 = *granum*. 3 = *tantilla*. 4 = *granulum*.

Lucidella (*Poenia*) *granum* (Pfeiffer)

Plate 1, figs. 1-6

Helicina granum Pfeiffer, 1856. Novit. Conch. 1: 86, pl. 23, figs. 20-23; 1857. Malak. Blätt. 3: 49 (type locality, Holguín, Oriente, Cuba; neotype, here selected, MCZ 73863, *ex* Gundlach); 1858. Monographia Pneumonopomorum Viventium, suppl. 1, p. 206; 1865. *Ibid.*, suppl. 2, p. 234; 1876. *Ibid.*, suppl. 3, p. 272; Arango, 1879. Contribución Fauna Malacológica Cubana, p. 53; Crosse, 1890. Jour. Conchyl. 38: 321; Reeve, 1873. Conch. Icon. 19: pl. 25, fig. 225.

Lucidella granum Pfeiffer, Sowerby, 1866. Thes. Conch. 3: 270, pl. 278 (13), fig. 468; Wagner, 1910. [*In*] Martini and Chemnitz, Conch. Cab. (2) 1: sect. 18, pt. 2, p. 343, pl. 68, figs. 14, 15.

Description. Shell attaining 3.5 mm in width and 3.0 mm in height, depressed conic, moderately glossy. Color reddish or coppery brown to pale orange yellow, lip often white. Whorls little more than 5, weakly inflated, slowly increasing in size; body whorl well and evenly rounded, barely descending at aperture. Suture well marked, slightly channeled. Spire convex, about equal in height to the body whorl. Aperture oblique, widely semilunate. Parietal wall thin and glassy. Basal callus thin, depressed, surface with wide, rounded wrinkles. Lip entire, thickened, barely expanded centrally. Columella short, concave. Sculpture of well marked, subregularly spaced spiral ridges, generally narrower than the intervals. Protoconch $1\frac{1}{8}$ whorls, well rounded, lightly raised, faintly and closely punctate. Periostracum wanting. Operculum as in genus.

Height Width

mm mm

3.0	3.2	Botanic Garden, Cienfuegos, Las Villas
2.6	3.5	Vilche's Hill, Soledad, Las Villas
2.5	3.3	Holguín, Oriente (neotype)
2.4	3.3	Cerro Canada de Jagüeyes, Holguín, Oriente
2.1	3.5	Loma Aguada de Puig, Retrete, Banes, Oriente

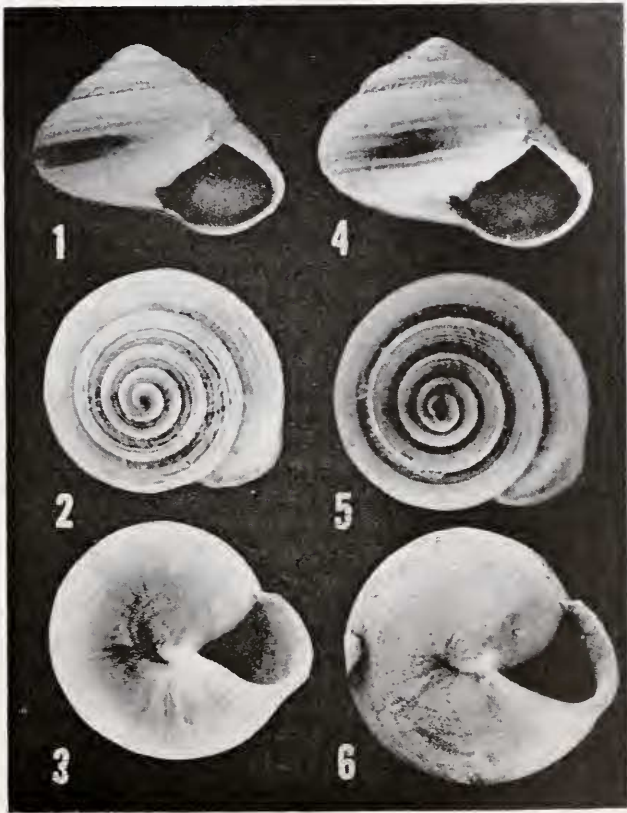


Plate 1

Lucidella (Poenia) granum (Pfeiffer)

Figs. 1-3. Neotype, here selected, of *Helicina granum* Pfeiffer, 1856, Cuba [Holguín, Oriente], 3.3 mm \times 2.5 mm, MCZ 73863.

Figs. 4-6. Botanic Garden, Cienfuegos, Las Villas, 3.5 mm \times 2.5 mm, MCZ 277130.

Remarks. This is the only species of the subgenus *Poenia* in Cuba. Its range is limited to the eastern end of the island in Oriente and the easternmost part of the neighboring Camagüey Province. The occurrence in and around the Botanic Garden of Cienfuegos and Soledad in western Las Villas, with no intervening records, is probably due to accidental introductions, possibly with plants.

In Cuba this species is readily identifiable by the presence of spiral sculpture.

Specimens examined. ORIENTE. *Miranda*: Cato del Rey, ca. 20 km from Miranda; Arroyo de Agua, near Miranda; Upper Mercedes Valley; top of hill N of Mercedes Valley; Nipe Hills, Tibisi; mogote, 8 km SE of Miranda (all ANSP). *Florida Blanca*, Alto Songo (MCZ). *Guantánamo*: Sierra Canasta, Romelia Woods; Monte Verde (both USNM); Guasa River, Mte. Líbano (MCZ). *Holguín*: Cerro Cariblanco, 16 km NE of Holguín; Unas, 12½ km NW of Holguín; Cerro Corralito, 17 km NE of Holguín; 2 km N of Unas; Cerro Canada de Jagüeyes; Buenavista, Bayamo (all MCZ); new road E of Ensenada de Mora; 1 km inland, W of river, Mota (both ANSP); Mogote Santa Ana, San Luis; Camayén, Santa Lucía; La Silla, Santa Lucía; Antilla, Bahía de Nipe (all USNM); Loma de la Aguada de Puig, Retrete, Banes (MCZ). CAMAGÜEY. El Jacinto, Cascorro. LAS VILLAS. Jardín Botánico, Cienfuegos; Vilches Hill, 2½ mi. E of Soledad, Cienfuegos (both MCZ).

Subgenus *Poeniella* H. B. Baker

Poeniella H. B. Baker, 1923. Occ. Papers Mus. Zool. Univ. Michigan no. 137, p. 23 (type-species, *Helicina pli-catula christophori* Pilsbry, 1897, St. Kitts, West Indies, original designation).

Poeniella "H. B. Baker" Clench, 1961. Occ. Papers Moll., Harvard Univ. 2 (26): 238 [error for *Poeniella*].

Description. Shell small, 2–4 mm in diameter, depressed to moderately raised or subconic; sculpture of regular, vari-ously strong, occasionally sigmoid, slanting axial riblets,

spiral striae weak or absent; labial denticles weak or obsolescent.

Remarks. The members of this subgenus are small, with generally pale shells differing from those in *Poenia* by having predominantly axial instead of spiral sculpture. This group is absent from Jamaica and probably originated in Hispaniola which has at least 7 species. In addition to Cuba and Hispaniola, this subgenus occurs in Puerto Rico, St. Kitts, Grand Cayman Island, the Bahamas, and the Florida Keys. It occupies a more northerly area than the subgenus *Poenia*, the area of overlap occurring in the Greater Antilles (see Map 1).

The 3 Cuban species are all small. Of the three, only *rugosa* seems to have an island-wide distribution (Map 2), thinning out considerably in the two outer provinces, Oriente and Pinar del Río. *L. granulum* is limited to the environs of Guantánamo, and *tantilla*, which also occurs in the Bahamas and Florida Keys, is found principally on a few islands off the north central coast of Cuba (Map 2).

Baker (1923: 23) cited the type-species of *Poeniella* as *Helicina (plicatula) [sic] christophori* Pilsbry. The misplaced parentheses caused some confusion in the literature. Pilsbry (1948) repeated the illogical original citation, while Aguayo and Jaume (1948) wrote *H. (Plicatula) christophori*, and Thiele (1929: 88) and Wenz (1938: 466) cited the type-species as *L. (P.) christophori*. The correct name is as given above and can be found on p. 22 in Baker (1923).

***Lucidella (Poeniella) rugosa* (Pfeiffer)**

Plate 2, figs. 1-6

Helicina rugosa Pfeiffer, 1839. Wiegmann's Arch. Naturg. 1 (5): 355 (type-locality, Palenque and Pan de Matanzas, Matanzas; type, destroyed); 1852. Monographia Pneumonopomorum Viventium, p. 341; 1858. *Ibid.*, suppl. 1, p. 180; 1865. *Ibid.*, suppl. 2, p. 217; Sowerby, 1842. Thes. Conch. 1: 14, pl. 3, fig. 132; Arango. 1879, Contribución Fauna Malacológica Cubana, p. 45; Reeve, 1873. Conch. Icon. 19: pl. 14, fig. 120.

Lucidella rugosa Pfeiffer, Sowerby, 1866. Thes. Conch. 3: 281, pl. 268 (*Helicina* 3) figs. 81, 82; Wagner, 1910. [In] Martini & Chemnitz, Conch. Cab. (2) 1: sect. 18, p. 347, pl. 69, figs. 8, 9.

Description. Shell small, 3–4 mm in width and 2–3 mm in height, depressed conic, moderately glossy. Color lemon-yellow, lip white. Whorls about 5, weakly rounded, slowly increasing in size. Suture well impressed. Spire low, convex. Aperture semilunate, constricted near both terminations, acutely angled above. Parietal wall strongly sigmoid. Basal callus depressed, thin, glossy, minutely punctate. Peristome thickened, reflected, widened and slightly bent downward, with a tiny notch at insertion in body whorl and a long, low, toothlike tubercle on basal portion. Columella short, concave, smoothly curved at insertion to basal lip. Early teleoconch punctate, later whorls marked by strong, slanting, regularly spaced axial ridges, wider than their interspaces. Protoconch $1\frac{1}{2}$ whorls, rounded, moderately raised, minutely punctate. Periostracum wanting. Operculum as in genus.

Height	Width	
mm	mm	
2.3	3.7	Casa Blanca, Pinar del Río
2.3	3.6	Paso Paredones, Cubitas, Camagüey
2.3	3.6	Harvard House, Soledad, Las Villas
2.2	3.6	El Mamey, Sagua La Grande, Las Villas
2.2	3.5	Cayo Lucas, Caibarién, Las Villas

Remarks. This species is separated from other Cuban *Poeniella* by its larger size and stronger sculpture. *L. granulum* which also has a weakly flaring peristome, reaches only about one-half the size of *rugosa* and the axial sculpture is much weaker. Moreover in *granulum* the labial swelling is barely perceptible and the notch at the upper labial insertion is minute. *L. rugosa* is closely related to several *Poeniella* from Hispaniola (see Hjalmarson and Pfeiffer, 1858: 145). The basal labial swelling and the tiny notch at the upper insertion of the lip are characteristic of *rugosa*.

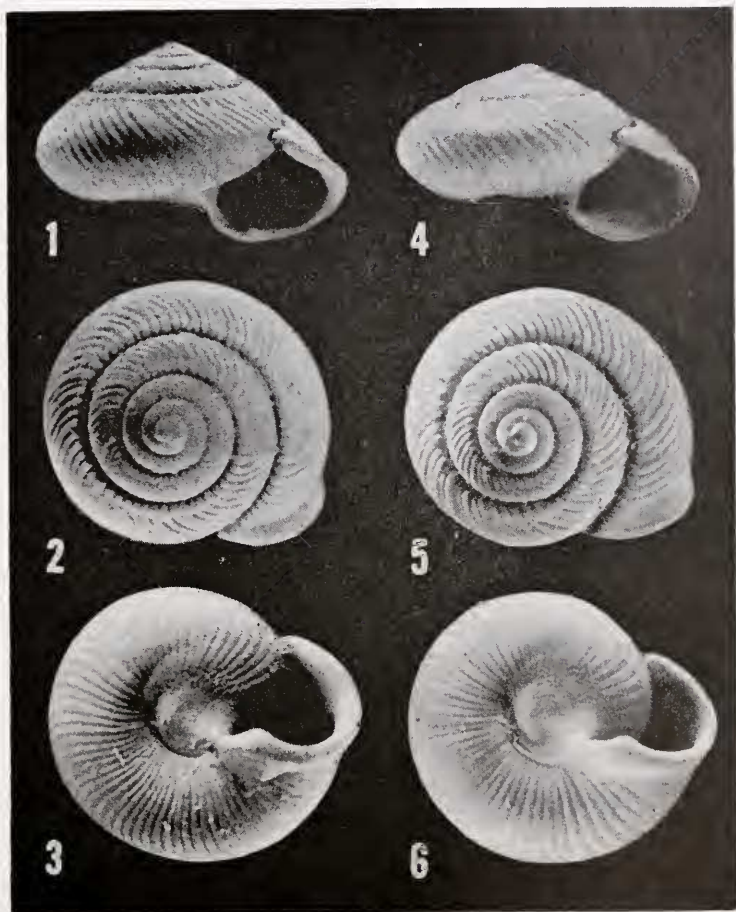


Plate 2

Lucidella (Poeniella) rugosa (Pfeiffer)

Figs. 1-3. San Martín de Biaya, Camagüey, 3.5 mm \times 2.2 mm, MCZ 128780.

Figs. 4-6. Arroyo Hondo, Camagüey, 3.8 mm \times 1.8 mm, MCZ 277240.

The distribution of *rugosa* centers around the middle of Cuba in Las Villas, Camagüey, and Matanzas Provinces. Records from Habana are few, and those from Oriente and Pinar del Río are scattered. Arango (1879) cited it from the Yunque de Baracoa in Oriente and Almendares in Havana; Aguayo and Jaume (1948) add Camoa and Sierra del Grillo in Havana. But Jaume (1945) did not find it on the Pan de Guajaibón in Pinar del Río, and the specimens from Sierra Canasta and Florida Blanca, Guantánamo, in Oriente in the Ramsden Collection in the USNM labelled *rugosa* proved to be *granulum*. Farfante (1942: 50) reported it from Camoa and Somorrostro, Havana, and stated that "se encuentra en toda la Isla bajo las piedras y hojarasca." Aguayo and Jaume (1953: 27) found it in small numbers in Baracoa, Havana and the Bosque de la Habana (1939: 238). They stated that the species is very restricted in the western area of Cuba and that it does not occur alive around the city of Habana. It is obvious that documentation of the presence of *rugosa* at the two ends of the island is still desirable.

Specimens examined. PINAR DEL RÍO. Casa Blanca [2 km SE of Palacios]. MATANZAS. 1 km W of Río Canimar; Coliseo, near Matanzas. LAS VILLAS. *Soledad*: Harvard House; Limones Sebuco, 1 mi SE of Soledad; Monte de la Vequita; Vilches Hill, 2½ mi E of Soledad; Guabairo; ½ mi E of Guabairo; Seboruco Portuguesa, 2 mi NE of Soledad; Seboruco, 2 mi NE of Soledad; Seboruco, 2 mi NW of Soledad; Los Portugueses; limestone hills on Caranao River. *Sagua La Grande*: San Miguel; Chinchila; El Mamey. *Vega Alta*: Murciélagos; El Hoyon; La Sinaloa; Piedras. Monte del Pico, El Roble, Cienfuegos; Loma el Ternero, San Juan de las Yeras; mogote near El Palenque de Remedios; loma near San Agustín, Zulueta; La Vigía, Mayajigua; La Veterana, San Diego de Valle; Canon del Yigre, Yaguajay; El Zanjón; Cueva de la Virgen, Corazón de Jesús; El Capiro [5 km S of Cabo Iguare]. *Off Caibarien*: Cayo Aguado; Cayo Conuco, 1 mi off Caibarien; Cayo Lucas. CAMAGÜEY. Paso Paredones, Cubitas Mts.; Corrales de Canilgones, Cubitas Mts.; El Cacaotal, Najaza

Mts.; Arroyo Hondo; San Martín de Biaya; Sibanicu, San Martín.

***Lucidella (Poeniella) granulum* (Pfeiffer)**

Plate 3, figs. 1-3

Helicina granulum "Gundlach" Pfeiffer, 1864. Malak. Blätt. 11: 161 (type-locality, Monte Toro, Guantánamo [Oriente], Cuba; holotype, destroyed (Clench and Jacobson, 1971: 101); neotype ANSP 110769, selected by Jacobson, 1973: 108, fig. 1; between Nimfitas and La Victoria, Monte Toro, Guantánamo, Oriente, Cuba); 1865. Monographia Pneumonopomorum Viventium, suppl. 2, p. 233; 1876. *Ibid.*, suppl. 3, p. 271; Arango, 1879. Contribución Fauna Malacológica Cubana, p. 53; Crosse, 1890. Jour. Conchyl. 38: 321.

Lucidella tantilla 'Pilsbry' Ramsden, 1914. Nautilus 28: 50, pl. 2, fig. 5, *non* Pilsbry, 1902.

Lucidella (Poenia) granulum (Pfeiffer). Aguayo and Jaume, 1948. Catálogo Moluscos de Cuba, no. 495.

Troschelviana (Microviana) granulum (Pfeiffer). Clench and Jacobson, 1971. Bull. Mus. Comp. Zool. 141 (7): 441.

Lucidella (Poeniella) granulum (Pfeiffer). Jacobson, 1973, Nautilus 87: 107-9, fig. 1.

Description. Shell very small, reaching only about 2.7 mm in width and 1.5 mm in height, glossy, translucent; whorls 4+, moderately swollen, increasing slowly in width, the last whorl only slightly wider than the penultimate, slightly descending at aperture; color light greenish-yellow. Spire slightly raised. Aperture oblique, widely semilunate; umbilical area covered; peristome rounded and reflected, narrower near the basal insertion where it terminates in a wide, very shallow notch. Columella short, evenly concave; suture well impressed especially at later whorls. Early teleoconch marked only with closely set punctations, last two whorls with regular, diagonal axial ribs gradually widening but becoming obsolete near the aperture where the only sculpture consists of even, irregularly spaced axial striae. Protoconch one whorl, slightly raised, distinct,

dulled by closely set irregular punctations. Periostracum thin, persistent. Operculum unknown.

Height	Width	
mm	mm	
1.4	2.6	Florida Blanca, Alto Songo, Oriente
1.3	2.4	km 54, Sierra Canasta, Santiago de Cuba, Oriente
1.0	2.2	neotype, Monte Toro, Guantánamo, Oriente

Remarks. The rarity of this obscure species, overlooked until recently, has been detailed by Jacobson (1973). Pfeiffer (1865: 233) reprinted his original description verbatim and later (1876: 271) merely listed the name. Sowerby (1866: 296) listed it as an unidentified species, and Reeve (1874) and Wagner (1910) omitted it. Fulton (1915) did not mention it among the names omitted by Wagner. Arango (1879), Crosse (1890), and Aguayo and Jaume (1948) repeated only the locality given originally by Pfeiffer. Clench and Jacobson (1971 b) tentatively referred it to the genus *Troschelviana*, subgenus *Microviana*, although Pfeiffer had made no reference to a mucronate protoconch, a feature characteristic of the helicinine tribe Vianini in which the genus *Troschelviana* belongs. Aguayo and Jaume (1948) placed *granulum* in *Lucidella*.

Lucidella granulum is easily confused with *L. tantilla* to which it must be very closely related. Chiefly, *granulum* has the lips of the peristome clearly expanded and it does not have a noticeable basal notch. Further, the axial riblets are stronger or heavier in *granulum* and its shell is lighter in color, with a more glossy appearance. The outline of the peristome in *granulum* tends to be rounded rather than ovately expanded as it is in *tantilla* and the insertion of the peristome basally is incurved rather more sharply than in *tantilla*.

Specimens of this tiny species were found by Ramsden (1914) "in dirt at the root of a large tree." Its small size and secretive habitat make this a difficult species to collect, possibly explaining the disjunctive distribution and the paucity of records.



Plate 3

Lucidella (Poeniella) granulatum (Pfeiffer)

Figs. 1-3. Neotype of *Helicina granulatum* Pfeiffer, designated by Jacobson, 1973, p. 108, between Nimfitas and La Victoria Monte Toro, Guantánamo, Oriente, Cuba, 2.2 mm \times 1.0 mm, ANSP 110769.

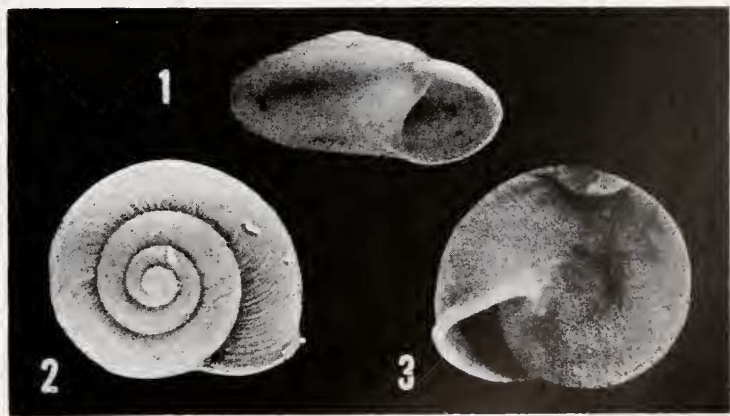


Plate 4

Lucidella (Poeniella) tantilla (Pilsbry)

Figs. 1-3. Farallón de Don Pepe, Cayo de las Brujas, Caibarién, 2.2 mm \times 1.1 mm, MCZ 188613.

Specimens examined. Oriente: Florida Blanca, Alto Songo; km 54, Sierra Canasta, Santiago de Cuba; La Cueva, Diego Cobas, Majaguabo (all Ramsden Collection in USNM); Guaso River, Monte Líbano, Guantánamo (USNM); Monte Toro, Guantánamo (USNM and ANSP).

***Lucidella (Poeniella) tantilla* (Pilsbry)**

Plate 4, figs. 1-3

Helicina tantilla Pilsbry, 1902. Nautilus 16: 53. (type-locality, Palm Beach, Florida; holotype ANSP 77349).

Lucidella (Poeniella) tantilla (Pilsbry), 1948. Land Mollusca of North America north of Mexico, Monograph 3, Acad. Nat. Sci. Philadelphia 2: 1085, fig. 580.

Lucidella tantilla "Pilsbry" Vanatta, 1923. Nautilus 37: 69, error for *tantilla*.

Description. Shell very small, reaching nearly 3.0 mm in width and 1.5 mm in height, depressed, moderately glossy. Color faintly yellowish. Whorls $4\frac{1}{4}$, barely inflated, slowly increasing except body whorl which is twice as wide as the penultimate; body whorl depressed, subcarinate, not descending at aperture, base excavated. Suture well impressed, spire low, domelike. Aperture oblique, rounded triangular, almost straight above, well rounded below. Basal callus rather strong, minutely pebbled. Peristome thickened, barely expanded, with a slight dip above, labial teeth obsolescent. Columella short, concave, inserting into basal lip with a moderately acute rounded angle. Sculpture of fine, regular, slanting, slightly curved axial ribs, about as wide as their intervals. Protoconch $1\frac{1}{2}$ whorls, rounded, barely raised, minutely pitted. Periostracum thin. Operculum as in genus.

Height	Width	
mm	mm	
1.4	2.9	Caicos Id., Bahamas
1.4	2.5	Farallón Don Pepe, Cayo Las Brujas, Caibarién, Las Villas, Cuba
1.3	2.6	Pumpkin Key, Florida
1.2	2.5	Cayo Cobas, Caibarién, Las Villas, Cuba

Remarks. As mentioned previously, *Lucidella tantilla* is most closely related to *granulum*; these species, because of their extremely small size, are easily confused. However, *tantilla* does not have the lips of the peristome expanded and it does have a noticeable basal notch. Further, Pilsbry (1902) based his description on a single specimen taken in an undisturbed woodland on the beach near the city of Palm Beach, Florida, a type-locality since destroyed. Pilsbry (1948) called his specimen, "a hurricane-borne waif from Cuba." The species is known from Cuba, the Florida Keys (Pilsbry, 1905; Vanatta, 1912; Walker, 1917) and the Bahamas (Clapp, 1913; 1921; Clench, 1937; 1942). In Cuba it is found on only a few keys off the north central coast. Aguayo and Jaume (1948) cited the species from Cayo Guillermo of the northern Coast of Camagüey and the MCZ has one lot each from Cayo Cobas near Cayo Francés, and Cayo de las Brujas, both of which are small keys lying off the northern coast of Las Villas near Caibarién. A single, broken specimen of *tantilla* (MCZ 237756) is from Cafetal Virginea, Guantánamo, but we have no other records from the mainland of Cuba and consider this doubtful.

It is difficult to speculate on the place of origin of *L. tantilla*, since both the Florida Keys and the Bahamas are geologically quite recent and since *tantilla* was apparently transported there by hurricane. We assume that *tantilla* originated in Cuba, and presently occupies refugia along the north central coast of the island.

Specimens examined. FLORIDA: Eliot Key; Pumpkin Key (both MCZ). BAHAMA IDS.: California and NW Point, S. Bimini; Sand Bank, Crossing Bay, Great Abaco; More's Id., 32 mi NW of SW Point, Great Abaco; NW Point, Little Inagua; Cornucopia, Acklins Id.; Cape Comete, E. Caicos, Caicos Ids. (all MCZ). CUBA: *Las Villas*: Farallón de Don Pepe, Cayo de las Brujas, Caibarién; Cayo Cobas, near Cayo Francés, Caibarién (both MCZ). *Oriente*: Guantánamo: Cafetal Virginea (MCZ)?.

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